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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,928	02/27/2004	Tobin J. Marks	7479	6801

22922 7590 10/03/2005

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EXAMINER

KUGEL, TIMOTHY J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/789,928

Applicant(s)

MARKS ET AL.

Examiner

Timothy J. Kugel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/7/05&4/25/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-22 are pending as filed on 27 February 2004. Claims 19-22 are withdrawn from consideration.

### ***Election/Restrictions***

2. Applicant's election without traverse of the invention of Group I, claims 1-18; the species of triazinyl as the D moiety in claims 5, 10 and 13; the species of pyrimidine-trionyl as the A moiety in claims 6, 10 and 14; the species of  $(-C=C-)_n$  as the  $(-X=X-)_n$  moiety in claims 7 and 15 and phenyl as the  $Ar^1$  and  $Ar^2$  in claim 8 in the reply filed on 15 July 2005 is acknowledged.

3. Claims 19-22 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 15 July 2005.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Oath/Declaration***

5. A new oath or declaration is required because the postal address of the second listed inventor has been amended. The wording of an oath or declaration cannot be amended. If the wording is not correct or if all of the required affirmations have not been made or if it has not been properly subscribed to, a new oath or declaration is

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required. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02.

### ***Drawings***

6. Figures 1A and 1B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the figure labeled Scheme 3 (Page 12) should be presented as a separate figure and not be imbedded in the disclosure. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Specification***

8. The disclosure is objected to because of the following informalities:

The acronym 'SHG' should be defined, at least at its first appearance (Page 3 ¶1).

The acronym 'AFM' should be defined, at least at its first appearance (Page 3 ¶4).

The acronym 'rms' should be defined, at least at its first appearance (Page 4 ¶5).

Appropriate correction is required.

9. The use of the trademarks VARIAN, MIRCOMASS and CARY have been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a substrate functionalized for hydrogen-bonding, does not reasonably provide enablement for a substrate that comprises the condensation product of hydroxylated indium tin oxide and an aminoalkyltrialkoxysilane. The specification does not enable any person skilled in the art to which it pertains, or

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with which it is most nearly connected, to make the invention commensurate in scope with these claims.

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

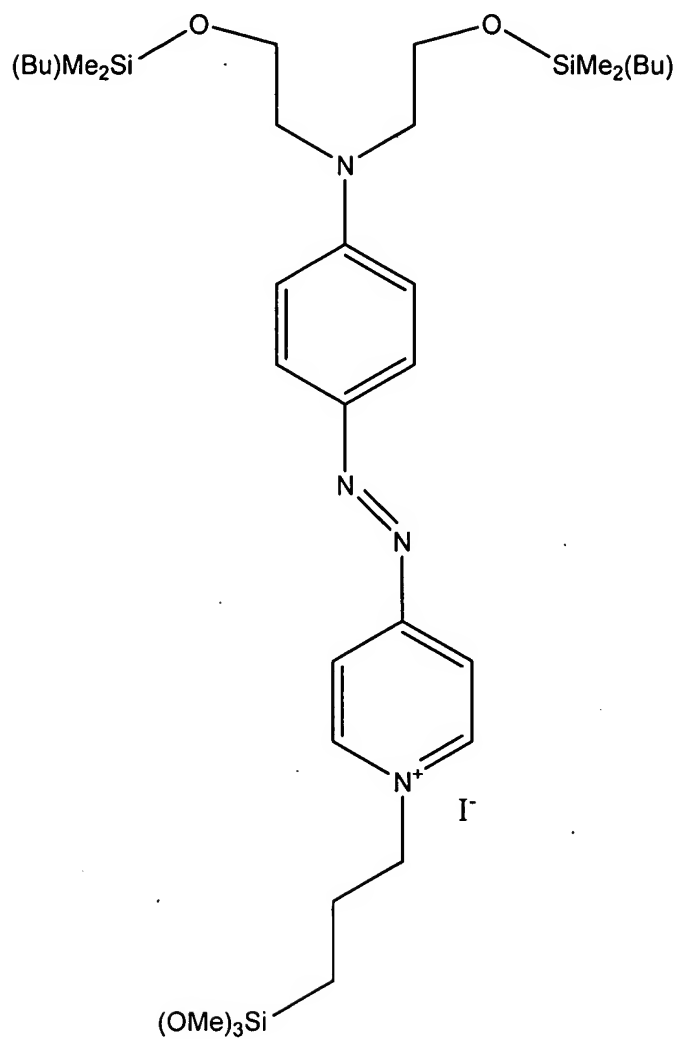
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. While not pertaining directly to the elected species, in the interest of compact prosecution claims 1-4 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 14 of U.S. Patent No. 6,855,274 (Marks hereinafter).

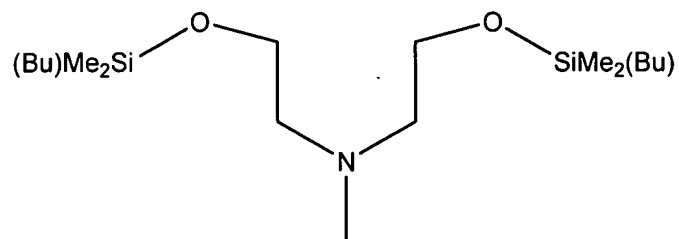
Although the conflicting claims are not identical, they are not patentably distinct from each other because Marks claims the chromophore

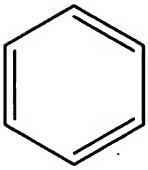
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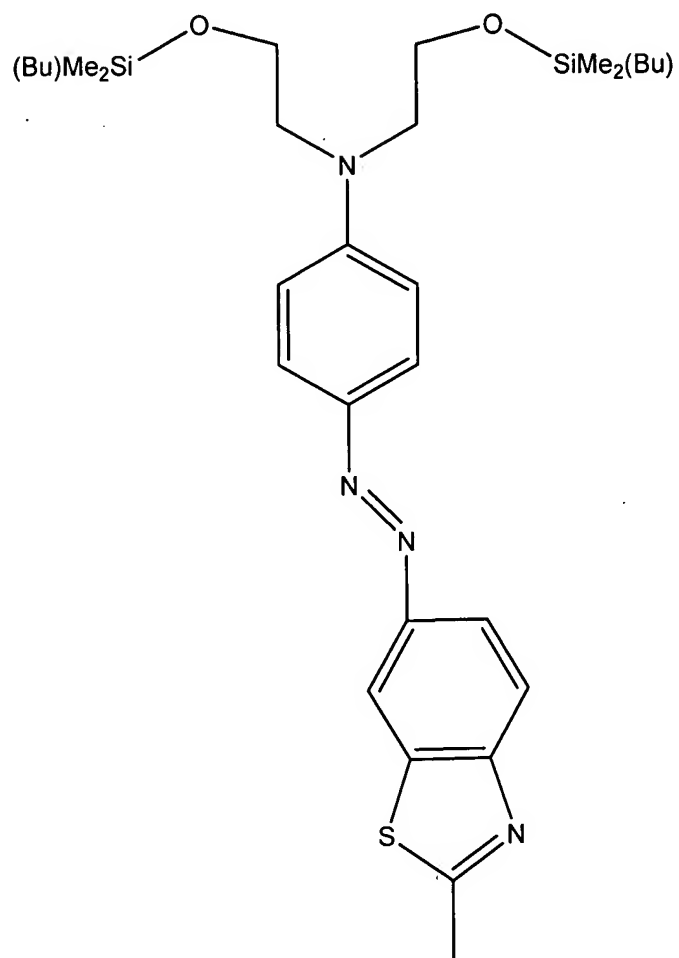
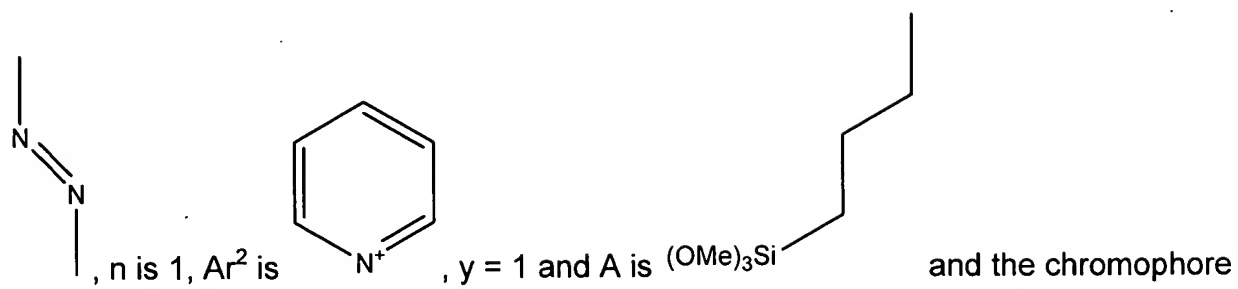
which anticipates the claimed

chromophore  $D-Ar^1_x(-X=X-)_nAr^2_y-A$  when D is



,  $Ar^1$  is , x is 1,  $(-X=X-)$  is

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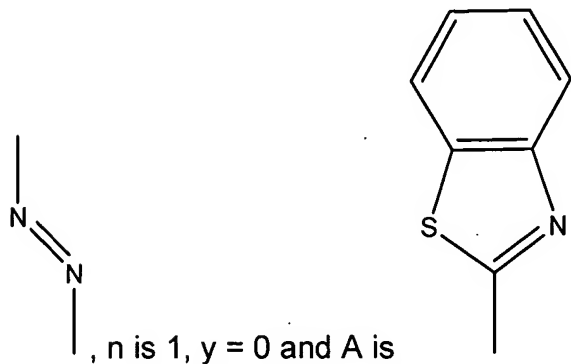
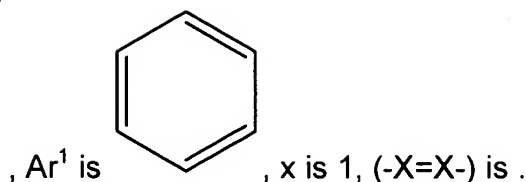
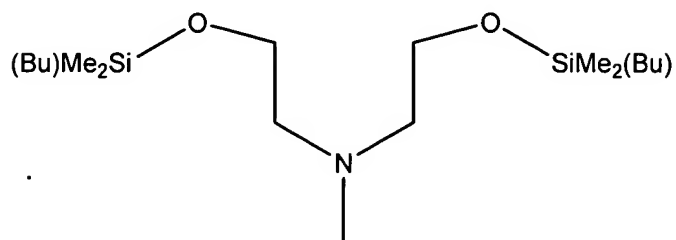


which anticipates the claimed

chromophore D-Ar<sup>1</sup><sub>x</sub>(-X=X-)<sub>n</sub>Ar<sup>2</sup><sub>y</sub>-A when D is



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### Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Peiwang Zhu et al., Electro-Optic Thin Films Self-Assembled via Multiple Hydrogen Bonds from the Vapor Phase, *Polymeric Materials: Science & Engineering*, 2003, 89, 265-266 (Zhu hereinafter).

Zhu teaches a film comprising a substrate comprising a hydrogen-donor moiety and a chromophore that anticipates the claimed chromophore D-Ar<sup>1</sup><sub>x</sub>(-X=X-)<sub>n</sub>Ar<sup>2</sup><sub>y</sub>-A

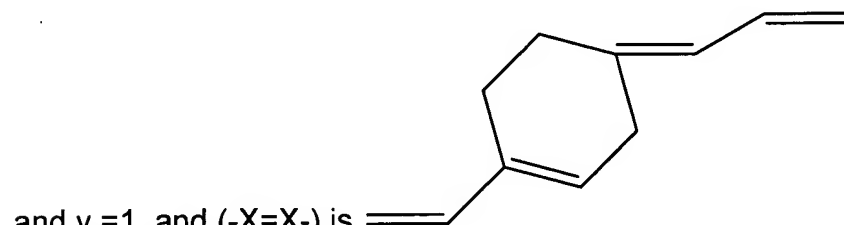
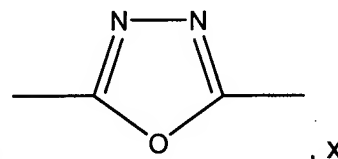
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when D is the elected triazinyl moiety a is the elected pyrimidine-trionyl moiety,  $(-X=X-)_n$  is the elected  $(-C=C-)_n$  group and  $Ar^1$  and/or  $Ar^2$  is the elected phenyl moiety (Scheme 1).

16. While not pertaining directly to the elected species, in the interest of compact prosecution claims 1, 2, 7, 12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,947,410 (Meyer hereinafter). Meyer is an X-type reference on the International Search Report for PCT/US04/06249—which is a continuation of 60/450,907, from which the instant application is a continuation.

Meyer teaches a film comprising a chromophore that anticipates the claimed chromophore  $D-Ar^1_x(-X=X-)_nAr^2_y-A$  when A and D are respectively  $R_1$  and  $R_1'$  independently of one another represent hydrogen, an optionally non-chromophorically substituted aliphatic, cycloaliphatic or araliphatic radical with up to 18 carbon atoms or an optionally non-chromophorically substituted, at most binuclear, carbocyclic or

heterocyclic aromatic radical,  $Ar^1$  and  $Ar^2$  are each the group



and  $y = 1$ , and  $(-X=X-)$  is

and  $n$  is 1 (Abstract, Column

2 Lines 10-41 and Column 9 Lines 1-16).

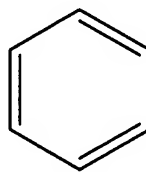
17. While not pertaining directly to the elected species, in the interest of compact prosecution claims 1, 2 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated

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by GB 1398993 (Fleck hereinafter). Fleck is an X-type reference on the International Search Report for PCT/US04/06249—which is a continuation of 60/450,907, from which the instant application is a continuation.

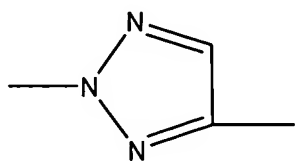
Fleck teaches a film comprising a chromophore that anticipates the claimed

chromophore  $D-Ar^1_x(-X=X-)_nAr^2_y-A$  when A and D are

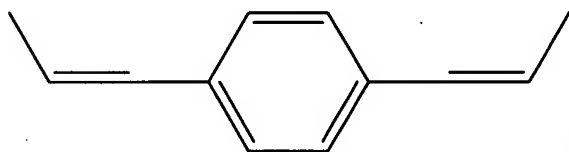


, Ar1 and Ar2 are each

the group



, x and y = 1, and (-X=X-) is



and n is 1 (Page 1 Lines 17-27 and Claim 1

Page 3 Lines 5-13).

### ***Claim Rejections - 35 USC § 103***

18. Claim 18 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhu in view of US 4,410,563 (Richter hereinafter).

Zhu teaches a film comprising a substrate comprising a hydrogen-donor moiety and a chromophore that anticipates the claimed chromophore  $D-Ar^1_x(-X=X-)_nAr^2_y-A$  when D is the elected triazinyl moiety a is the elected pyrimidine-trionyl moiety, (-X=X-)<sub>n</sub> is the elected (-C=C-)<sub>n</sub> group and Ar<sup>1</sup> and/or Ar<sup>2</sup> is the elected phenyl moiety as detailed above.

Zhu does not disclose expressly a substrate comprising the condensation product of hydroxylated indium tin oxide and an aminoalkyltrialkylsilane.

Richter discloses a film substrate comprising a mixture of indium-tin oxide and N, beta-aminoethyl-gamma-aminopropyltrimethoxysilane (Column 2 Lines 15-26).

Since Richter teaches the same composition as claimed, one of ordinary skill in the art at the time the invention was made would have expected that the substrate of the Richter composition would inherently be a condensation product of the two components as claimed.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to build the self-assembled chromophore of Zhu on the substrate of Richter. The motivation to do so would have been to form a water repellant coating (Richter Column 2 Lines 15-26).

### ***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Regarding references, DE 3620825 and CH 577535, X-type references on the International Search Report for PCT/US04/06249—which is a continuation of 60/450,907, from which the instant application is a continuation—the references have no English language equivalents. Translations of the references have been ordered and they will be treated in the next Office action.

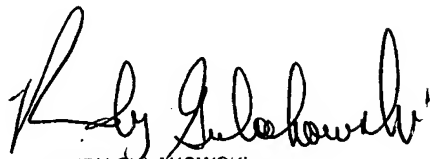
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20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJK  
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RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700